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1	US 20070298750 A1	20071227	18	FREQUENCY SYNTHESIZER	455/323
2	US 20070254616 A1	20071101	13	Receiver dynamic range enhancement	455/323
3	US 20070207762 A1	20070906	11	Receiver circuit	455/323
4	US 20070135074 A1	20070614	21	Quadrature mixer circuits and mobile terminal using the same	455/323
5	US 20070077908 A1	20070405	87	Fully integrated tuner architecture	455/323
6	US 20070077907 A1	20070405	12	Linearized and balanced mixer apparatus and signal mixing method	455/323
7	US 20070054649 A1	20070308	10	FREQUENCY STABILITY MEASURING APPARATUS	455/323
8	US 20060293012 A1	20061228	10	TERRESTIAL DIGITAL MULTIMEDIA BROADCASTING RECEIVER	455/264
9	US 20060286957 A1	20061221	8	Direct conversion radio apparatus	455/323
10	US 20060211398 A1	20060921	14	Multiple intermediate frequencies receiver and a method thereof	455/323
11	US 20060194559 A1	20060831	21	Radio-frequency circuit	455/323
12	US 20060194556 A1	20060831	8	Local oscillation circuit for direct conversion receiver	455/255
13	US 20060178125 A1	20060810	12	Receiver for wireless communication systems and I/O signal phase difference correction method therefor	455/323

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1	MASUDA; Toru
2	Gorin; Joseph M. et al.
3	Doerr; Lukas
4	Igarashi; Yutaka et al.
5	Vorenkamp; Pieter et al.
6	Rector; Stephen J.
7	HATTORI; Masashi
8	JO; BYEONG HAK et al.
9	Oishi; Sadatoshi
10	Wolf; Guy
11	Hyogo; Akira et al.
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14	US 20060172718 A1	20060803	7	Mixer stage and method for mixing signals of different frequencies	455/323
15	US 20060160518 A1	20060720	15	Harmonic reject receiver architecture and mixer	455/323
16	US 20060094389 A1	20060504	14	Push-pull amplifier and frequency converter circuit	455/313
17	US 20060068745 A1	20060330	11	Combined automatic frequency correction and time track system to minimize sample timing errors	455/323
18	US 20060068735 A1	20060330	14	Radio receiver and radio receiving method	455/234.1
19	US 20060058001 A1	20060316	17	Radio receiver	455/334
20	US 20060035618 A1	20060216	8	Wireless data communication device	455/323
21	US 20060035617 A1	20060216	18	Intermediate frequency receiver with improved image rejection ratio	455/323
22	US 20060035615 A1	20060216	9	Balanced hybrid coupler network	455/313
23	US 20060025101 A1	20060202	13	Adaptive mixer output filter bandwidth control for variable conversion gain down-conversion mixer	455/323
24	US 20060025100 A1	20060202	13	Method to improve CMFB phase margin of variable-output-bandwidth mixer	455/323
25	US 20060014513 A1	20060119	20	Communication semiconductor integrated circuit device and a wireless communication system	455/323
26	US 20060014512 A1	20060119	23	Programmable mixer for reducing local oscillator feedthrough and radio applications thereof	455/293

	Inventor
14	Leistner; Andreas et al.
15	Seendripu; Kishore et al.
16	Dodo; Hideaki
17	Wei; Paul Chun-Hsiung
18	Toyoda; Takehiko et al.
19	Minnis; Brian J. et al.
20	Pleasant; Wayne
21	Kim; Jae-Wan
22	Hoover; Lowell R.
23	Li; Qiang
24	Li; Qiang
25	Uozumi; Toshiya et al.
26	Khorram; Shahla

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27	US 20050282510 A1	20051222	15	Linear mixer with current amplifier	455/190.1
28	US 20050170807 A1	20050804	9	Method for frequency conversion and receiver	455/323
29	US 20050170806 A1	20050804	24	Mixer circuit for direct conversion transceiver with improved IP2	455/323
30	US 20050118977 A1	20050602	36	Method, apparatus, and systems for digital radio communication systems	455/323
31	US 20050090223 A1	20050428	28	Use of a down-bond as a controlled inductor in integrated circuit applications	455/333
32	US 20050079850 A1	20050414	14	DC interference removal in wireless communications	455/324
33	US 20050079849 A1	20050414	11	Receiver for down-conversion of dual band for digital multimedia broadcasting or digital audio broadcasting	455/323
34	US 20050064840 A1	20050324	24	Wideband distributed mixers	455/323
35	US 20050043002 A1	20050224	12	Method and apparatus for direct digital to rf conversion using pulse shaping	455/323
36	US 20040266385 A1	20041230	16	Semiconductor integrated circuit device and portable terminal system	455/333
37	US 20040242181 A1	20041202	37	Received communication signal processing methods and components for wireless communication equipment	455/323
38	US 20040198298 A1	20041007	20	Electronically tuned agile integrated bandpass filter	455/333
39	US 20040180643 A1	20040916	19	Semiconductor integrated circuit device	455/326

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27	Bang, Hee-mun et al.
28	Rebel, Reimund
29	Kim, Young-Jin
30	Drogi, Serge Francois et al.
31	Behzad, Arya Reza
32	Chen, Weizhong et al.
33	Na, Yoo Sam et al.
34	Heydari, Payam et al.
35	Vienney, Cecile et al.
36	Uchitomi, Takeshi et al.
37	Hepler, Edward L. et al.
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40	US 20040162050 A1	20040819	16	Method for generating multiplier coefficients for a mixer	455/323
41	US 20040137869 A1	20040715	17	Direct conversion receiver for calibrating phase and gain mismatch	455/324
42	US 20040132423 A1	20040708	25	Mixer and frequency conversion apparatus for improving phase-mismatching	455/323
43	US 20040127187 A1	20040701	7	Dynamic power sharing zero intermediate frequency (ZIF) mixer and method of forming same	455/323
44	US 20040116094 A1	20040617	11	Apparatus and method for input channel isolation within an electronic test instrument	455/323
45	US 20040102172 A1	20040527	17	Dual-mode RF communication device	455/302
46	US 20040077328 A1	20040422	17	Frequency modulating device of an integrated circuit and a method of measuring modulated frequency	455/323
47	US 20040077326 A1	20040422	21	Fast settling variable gain amplifier with DC offset cancellation	455/313
48	US 20040063416 A1	20040401	12	Channel calibrator for use with a quadrature mixing receiver and a method of operation thereof	455/313
49	US 20040058690 A1	20040325	6	Antenna system	455/456.1
50	US 20040043744 A1	20040304	12	Apparatus and method for DC offset compensation in a direct conversion receiver	455/324
51	US 20030201837 A1	20031030	8	Modulating module incorporating a harmonically distorted modulator, and frequency shifting module with a harmonic mixer	331/74

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40	Menkhoff, Andreas
41	Kim, Young-Jin
42	Oh, Seung Min et al.
43	Peterson, Vance H. et al.
44	Eastwood, James S.
45	Hendin, Neil
46	Fujita, Ken
47	Shi, Zhongming
48	Kuenen, Jeroen C. et al.
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52	US 20030194985 A1	20031016	16	Low noise converter employed in satellite broadcast reception system and receiver apparatus	455/323
53	US 20030186670 A1	20031002	258	Method and circuit or down-converting a signal	455/323
54	US 20030186669 A1	20031002	24	Low power consumption receiver apparatus	455/323
55	US 20030186668 A1	20031002	16	Receiver and method for determining an intermediate frequency in a wireless communication device	455/313
56	US 20030139166 A1	20030724	12	Direct conversion receiver architecture	455/324
57	US 20030119471 A1	20030626	11	Line coupling structure, mixer, and receiving/transmitting apparatus	455/323
58	US 20030104799 A1	20030605	9	RF receivers and methods therefor	455/324
59	US 20030100286 A1	20030529	12	Direct conversion of narrow-band RF signals	455/324
60	US 20030092417 A1	20030515	10	Method and apparatus for matching receiver carrier frequency	455/323
61	US 20030087625 A1	20030508	7	Direct-conversion receiver for a communication system using a modulation with non-constant envelope	455/323
62	US 20030073423 A1	20030417	10	Receiver of mobile communication terminal	455/324
63	US 20030064701 A1	20030403	21	Direct digitally tunable microwave oscillators and filters	455/323
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52	Nakamura, Makio
53	Sorrells, David F. et al.
54	Yamawaki, Taizo et al.
55	Fitzrandolph, David K.
56	Vilhonen, Sami et al.
57	Iwatani, Hidetoshi et al.
58	Hayek, Matt et al.
59	Severson, Matthew L. et al.
60	Fernandez-Corbaton, Ivan Jesus et al.
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65	US 20030060182 A1	20030327	22	Local oscillator signal divider and low-noise converter employing the same	455/323
66	US 20030045264 A1	20030306	18	Adaptive linearization technique for communication building block	455/323
67	US 20030045263 A1	20030306	42	Integrated direct conversion satellite tuner	455/323
68	US 20030017817 A1	20030123	11	Tuner	455/323
69	US 20030008630 A1	20030109	6	Antenna receiver in which carrier-to-noise ratio of demodulation signal is improved	455/323
70	US 20020193108 A1	20021219	24	Multi-mode satellite and terrestrial communication device with position location	455/427
71	US 20020137488 A1	20020926	14	Direct conversion receiver for performing phase correction upon change of the gain of low-noise amplifier	455/324
72	US 20020055347 A1	20020509	8	WIDEBAND IF IMAGE REJECTING RECEIVER	455/302
73	US 20020042256 A1	20020411	36	Packet acquisition and channel tracking for a wireless communication device configured in a zero intermediate frequency architecture	455/232.1
74	US 20020034934 A1	20020321	15	High-frequency module and radio device using the same	455/318
75	US 20020019220 A1	20020214	27	Image suppression filter circuit	455/313
76	US 20010007816 A1	20010712	10	System and method for radio signal reconstruction using signal processor	455/280
77	US 7333423 B2	20080219	17	Transceiver with calibrated I and Q paths and methods for deconvolved calibration	370/210

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65	Nibe, Masayuki
66	Jeong, Hei-sam et al.
67	Wakayama, Myles et al.
68	Cowley, Nicholas Paul
69	Ohtaki, Yukio
70	Robinett, Robert L.
71	Mitama, Masataka
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78	US 7324791 B2	20080129	40	Low-noise differential bias circuit and differential signal processing apparatus	455/84
79	US 7313369 B2	20071225	19	Communication semiconductor integrated circuit and radio communication system	455/76
80	US 7308242 B2	20071211	200	Method and system for down-converting and up-converting an electromagnetic signal, and transforms for same	455/313
81	US 7295826 B1	20071113	117	Integrated frequency translation and selectivity with gain control functionality, and applications thereof	455/323
82	US 7283800 B2	20071016	12	Adaptive mixer output filter bandwidth control for variable conversion gain down-conversion mixer	455/323
83	US 7277682 B2	20071002	14	RF passive mixer with DC offset tracking and local oscillator DC bias level-shifting network for reducing even-order distortion	455/127.1
84	US 7268640 B2	20070911	8	Frequency generator arrangement	332/117
85	US 7245872 B2	20070717	30	Satellite broadcasting converter, control circuit incorporated therein, and detector circuit used in such control circuit	455/3.02
86	US 7236761 B2	20070626	16	Balanced circuit arrangement and method for linearizing such an arrangement	455/313
87	US 7231197 B1	20070612	21	Angle rate interferometer and passive ranger	455/323
88	US 7197292 B1	20070327	12	Chopper stabilized analog multiplier	455/311
89	US 7197279 B2	20070327	44	Multiprotocol RFID reader	455/41.2
90	US 7194246 B2	20070320	252	Methods and systems for down-converting a signal using a complementary transistor structure	455/319
91	US 7184725 B2	20070227	34	Pole switch down converter with symmetric resonator	455/138
92	US 7181186 B2	20070220	25	Mixer and frequency conversion apparatus for improving phase-mismatching	455/323
93	US 7158772 B1	20070102	9	Filter for broadcast receiver tuner	455/307

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78	Nakatani; Toshifumi et al.
79	Oosawa; Hirotaka et al.
80	Sorrells; David F. et al.
81	Cook; Robert W. et al.
82	Li; Qiang
83	Zhou; Sining
84	Stadius; Kari Rainer
85	Hirai; Masato
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94	US 7149492 B2	20061212	13	Method to improve CMFB phase margin of variable-output-bandwidth mixer	455/323
95	US 7146144 B2	20061205	16	Frequency agile exciter	455/260
96	US 7123892 B2	20061017	6	Architecture for an AM/FM digital intermediate frequency radio	455/142
97	US 7123891 B2	20061017	31	Wireless communications device allowing a soft handoff procedure in a mobile communications system	455/130
98	US 7107035 B2	20060912	17	Frequency converter and radio communication apparatus	455/323
99	US 7103332 B2	20060905	18	Apparatus and method for compensating for frequency offset in a mobile communication system	455/192.2
100	US 7099646 B1	20060829	21	Signal mixer having a single-ended input and a differential output	455/313
101	US 7089032 B2	20060808	35	Radio transmitting/receiving device	455/550.1
102	US 7088973 B2	20060808	19	Wireless communications device allowing a soft handoff procedure in a mobile communications system	455/130
103	US 7085549 B2	20060801	6	Dynamic power sharing zero intermediate frequency (ZIF) mixer and method of forming same	455/323
104	US 7082294 B2	20060725	10	Self-adaptive frequency band-pass filtering device in microwave signal transceiver	455/260
105	US 7076231 B2	20060711	24	Receiver apparatus controlling the power consumption according to the reception signal level	455/323
106	US 7075345 B2	20060711	20	Frequency converter having low supply voltage	327/113
107	US 7050779 B2	20060523	18	Semiconductor integrated circuit device	455/333
108	US 7046980 B1	20060516	21	Method and apparatus for up-and down-conversion of radio frequency (RF) signals	455/323
109	US 7039375 B2	20060502	12	Up/down converter	455/190.1

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95	Robinson; Ian et al.
96	Li; Junsong et al.
97	Loke; Aravind
98	Otaka; Shoji
99	Choi; Pil-Soon et al.
100	Jin; Xiaodong et al.
101	Hongo; Toyohiko et al.
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103	Peterson; Vance H. et al.
104	Denis; Bernard et al.
105	Yamawaki; Taizo et al.
106	Umeda; Toshiyuki et al.
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110	US 7031688 B2	20060418	14	Direct-conversion receiver system and method with quadrature balancing and DC offset removal	455/318
111	US 7024172 B1	20060404	25	Direct conversion receiver using a dithered local oscillator to mitigate adjacent channel coherent interference	455/324
112	US 7010287 B2	20060307	17	Quadrature signal generator with feedback type frequency doubler	455/318
113	US 7006814 B2	20060228	11	Direct conversion receiver and transceiver	455/324
114	US 7003276 B2	20060221	37	Subsampling communication receiver architecture with gain control and RSSI generation	455/323
115	US 6999744 B2	20060214	12	Measurement of local oscillation leakage in a radio frequency integrated circuit	455/310
116	US 6990326 B2	20060124	26	Image suppression filter circuit	455/302
117	US 6970689 B2	20051129	23	Programmable mixer for reducing local oscillator feedthrough and radio applications thereof	455/326
118	US 6970688 B2	20051129	21	Local oscillator signal divider and low-noise converter employing the same	455/323
119	US 6968173 B2	20051122	11	Tuner	455/323
120	US 6963732 B2	20051108	30	Subsampling communication receiver architecture with relaxed IFA readout timing	455/131
121	US 6957056 B2	20051018	14	Receiver and method for determining an intermediate frequency in a wireless communication device	455/323
122	US 6950642 B2	20050927	19	System and method for reducing noise in a recording receiver	455/296
123	US 6950639 B2	20050927	14	Local oscillator for generating an HF signal for direct mixing by using avalanche photodiodes	455/196.1
124	US 6944437 B2	20050913	18	Electronically programmable multimode circuit	455/323
125	US 6944431 B2	20050913	8	High-frequency signal transmission apparatus and electronic tuner using the same	455/188.2
126	US 6925294 B2	20050802	7	Antenna receiver in which carrier-to-noise ratio of demodulation signal is improved	455/323

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111	Murphy; Patrick J. et al.
112	Oh; Seung Min et al.
113	Ichihara; Masaki
114	Muhammad; Khurram et al.
115	Kim; Hea Joung
116	Otaka; Shoji
117	Khorram; Shahla
118	Nibe; Masayuki
119	Cowley; Nicholas Paul
120	Muhammad; Khurram et al.
121	Fitzrandolph; David K.
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127	US 6873836 B1	20050329	138	Universal platform module and methods and apparatuses relating thereto enabled by universal frequency translation technology.	455/313
128	US 6850748 B2	20050201	14	RF front end with reduced carrier leakage	455/302
129	US 6836650 B2	20041228	258	Methods and systems for down-converting electromagnetic signals, and applications thereof	455/319
130	US 6816712 B2	20041109	37	Radio apparatus	455/83
131	US 6813485 B2	20041102	201	Method and system for down-converting and up-converting an electromagnetic signal, and transforms for same	455/313
132	US 6804261 B2	20041012	16	Multi-band receiver having multi-slot capability	370/478
133	US 6775530 B2	20040810	12	Direct conversion of narrow-band RF signals	455/324
134	US 6766158 B1	20040720	17	Harmonic cancellation mixer	455/323
135	US 6766149 B1	20040720	20	Mobile radio terminal and surface acoustic wave antenna duplexer	455/83
136	US 6745020 B2	20040601	7	Direct downconversion receiver	455/323
137	US 6728528 B1	20040427	17	Wireless communications device allowing a soft handoff procedure in a mobile communications system	455/318
138	US 6725024 B1	20040420	8	Offset local oscillator frequency	455/255
139	US 6717533 B2	20040406	10	Method and apparatus for combining a wireless receiver and a non-wireless receiver	341/61
140	US 6687493 B1	20040203	259	Method and circuit for down-converting a signal using a complementary FET structure for improved dynamic range	455/323
141	US 6567654 B1	20030520	18	Elimination of spurious signals in double conversion tuner using a dynamic intermediate frequency and a preselected crystal reference frequency	455/315
142	US 6427068 B1	20020730	26	Simplified high frequency tuner and tuning method	455/302

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127	Sorrells; David F. et al.
128	Song; Eunseok et al.
129	Sorrells; David F. et al.
130	Otaka; Shoji et al.
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132	Snider; James R.
133	Severson; Matthew L. et al.
134	Molnar; Alyosha C. et al.
135	Hikita; Mitsutaka et al.
136	Rzyski; Eugene et al.
137	Loke; Aravind
138	Lindoff; Bengt et al.
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140	Sorrells; David F. et al.
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143	US 6424074 B1	20020723	23	Method and apparatus for upconverting and filtering an information signal utilizing a vibrating micromechanical device	310/309
144	US 6421534 B1	20020716	92	Integrated frequency translation and selectivity	455/313
145	US 6397044 B1	20020528	11	Transceiver	455/73
146	US 6393266 B1	20020521	43	Preprocessor and related frequency translator	455/323
147	US 6236690 B1	20010522	21	Direct-conversion receiver for digital-modulation signal	375/334
148	US 6175728 B1	20010116	17	Direct conversion receiver capable of canceling DC offset voltages	455/323
149	US 6163688 A	20001219	11	Oscillator and communications device	455/318
150	US 6088581 A	20000711	12	Method and apparatus for reducing amplitude modulated interference in a receiver	455/131
151	US 6064871 A	20000516	10	Low power .DELTA..SIGMA. convertor	455/323
152	US 6061551 A	20000509	206	Method and system for down-converting electromagnetic signals	455/118
153	US 6009318 A	19991228	12	Electronically adjustable balanced-to-unbalanced converters (balun)	455/326
154	US 6006080 A	19991221	11	Receiving mixer circuit for mobile radio transceiver designed to operate with multiple modulation modes and multiple frequency bands	455/323
155	US 5999804 A	19991207	7	Low noise quadrature mixer circuit	455/333
156	US 5937338 A	19990810	41	Scanning radio receiver	455/161.2
157	US 5926752 A	19990720	15	Apparatus and method for remote convenience message transmission and control with a tunable filter receiver	455/323
158	US 5825254 A	19981020	7	Frequency converter for outputting a stable frequency by feedback via a phase locked loop	331/25
159	US 5634207 A	19970527	26	Frequency converter capable of reducing noise components in local oscillation signals	455/323

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143	Nguyen; Clark T.-C.
144	Cook; Robert W. et al.
145	Nash; Adrian et al.
146	Molnar; Alyosha C.
147	Mimura; Masahiro et al.
148	Mitama; Masataka
149	Fujii; Yasutaka et al.
150	Bickley; Robert Henry et al.
151	Leung; Bosco
152	Sorrells; David F. et al.
153	Freed; John G.
154	Kato; Hidenobu et al.
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156	Tomita; Nobuharu
157	Lin; Xing Ping
158	Lee; Sang-Bok
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160	US 5557642 A	19960917	9	Direct conversion receiver for multiple protocols	375/316
161	US 5224218 A	19930629	8	Microwave device	455/323
162	US 5136720 A	19920804	15	Matrixed mixer	455/323
163	US 4928314 A	19900522	12	Heterodyne stage having precise closed-loop control of the amplitude of the injection signal thereof	455/236.1
164	US 4709410 A	19871124	21	Frequency conversion circuits	455/333
165	US 4662000 A	19870428	23	Frequency conversion circuits	455/333
166	US 4383334 A	19830510	6	Intermodulation cancelling mixer	455/295

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160	Williams; Tim A.
161	Shiga; Nobuo
162	Titus; Ward S. et al.
163	Grandfield; Walter J. et al.
164	Tajima; Yusuke et al.
165	Tajima; Yusuke et al.
166	Epsom; Robert L.